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OUR INHERITED PRACTICE IN ELEMENTARY SCHOOLS

S. CHESTER PARKER
The University of Chicago

V. PESTALOZZIAN OBJECT-TEACHING AND ORAL INSTRUCTION

This is the fifth of a series of articles intended to emphasize a method of teaching the history of education in which special attention is paid to educational practice in its relation to social conditions. This method can be illustrated to advantage in the work of Pestalozzi. The relation of this great reformer to general social movements can best be shown in connection with the Swiss Revolution of 1798 and with what might be called "Pestalozzian industrial training." His great influence on the actual practice of elementary schools can be illustrated in connection with "Pestalozzian object-teaching and oral instruction" and "Pestalozzian formalism." The former will be treated in this paper.

Pestalozzi protested vigorously against teaching children words and phrases that they did not understand, and insisted upon the substitution of real experience with natural objects as the fundamental starting-point of instruction. In this he was following Rousseau in "psychologizing instruction," and he himself considered it his most important reform. He said,

> If I look back and ask myself what I have really done toward the improvement of the methods of elementary instruction, I find that in recognizing observation as the absolute basis of all knowledge, I have established the first and most important principle of instruction.

We have seen how the influence of the Reformation and the invention of printing tended to make learning to read and memorizing the catechism the fundamentals in elementary education. Calling attention to this, Pestalozzi said,

> In Europe the culture of the people has ended by becoming an empty chattering, fatal alike to real faith and real knowledge; an instruction of

> mere words and outward show, unsubstantial as a dream, and not only absolutely incapable of giving us the quiet wisdom of faith and love, but bound, sooner or later, to lead us into incredulity and superstition, egotism and hardness of heart. . . . . Everything confirms me in my opinion that the only way of escaping a civil, moral, and religious degradation, is to have done with the superficiality, narrowness and other errors of our popular instruction, and recognize sense impression as the real foundation of our knowledge.

If we study a few examples of object-teaching as they occurred in Pestalozzi's experience we will get a concrete notion of what he meant by the "necessity of basing instruction on sense perception" and will see the relation to arithmetic, language, geography, and other studies.

In the *Journal* in which he described the education of his own child in 1774 he said,

> I tried to make him understand the meaning of numbers. At present he knows only their names without attaching any precise meaning to them. The child has been in the habit of associating no difference of meaning with the various names of numbers he pronounces. . . . . Why have I been so foolish as to let him pronounce important words without taking care at the same time to give him a clear idea of their meaning?

In *Leonard and Gertrude* (1781) we get examples of how he followed up this theory with the spinning children at Neuhof.

> The instruction [Gertrude] gave them in the rudiments of arithmetic was intimately connected with the realities of life. She taught them to count the number of steps from one end of the room to the other, and two of the rows of five panes each, in one of the windows, gave her an opportunity to unfold the decimal relations of numbers. She also made them count their threads while spinning, and the number of turns on the reel, when they wound the yarn into skeins. Above all, in every occupation of life she taught them an accurate and intelligent observation of common objects and the forces of nature.

From the third class that Pestalozzi taught at Burgdorf (1800) we have one of the clearest examples of his object-teaching. One of his pupils there wrote,

> The language exercises were the best thing we had, especially those on the wall-paper of the school room, which were real practice in sense impression. We spent hours before this old and torn paper, occupied in examining the number, form, position, and color of the different designs, holes, and rents, and expressing our ideas in more and more enlarged

sentences. Thus he would ask: "Boys, what do you see?" (He never addressed the girls.)

> *Answer:* "A hole in the paper."
> Pestalozzi: "Very well, say after me:
> "I see a hole in the paper.
> "I see a long hole in the paper.
> "Through the hole I see the wall.
> "Through the long narrow hole I see the wall.
> "I see figures on the paper.
> "I see black figures on the paper.
> "I see round black figures on the paper.
> "I see a square yellow figure on the paper.
> "By the side of the square yellow figure I see a round black one.
> "The square figure is joined to the round figure by a large black stripe, etc.".

At Burgdorf natural history materials, chiefly minerals and plants, were collected by the children on their walks, and examined and described, but the teachers were ignorant of any scientific classifications.

From Yverdon (1805) we have a good example of a sense-perception geography lesson, as described by a pupil.

> The first elements of geography were taught us from the land itself. We were first taken to a narrow valley not far from Yverdon, where the river Buron runs. After taking a general view of the valley, we were made to examine the details, until we had obtained an exact and complete idea of it. We were then told to take some of the clay which lay in beds on one side of the valley, and fill the baskets which we had brought for the purpose. On our return to the Castle, we took our places at the long tables, and reproduced in relief the valley we had just studied, each one doing the part that had been allotted to him. In the course of the next few days more walks and more explorations, each day on higher ground, and each time with a further extension of our work. Only when our relief was finished were we shown the map, which by this means we did not see until we were in a position to understand it.

These examples are representative of the methods of sense-perception or object-teaching used by Pestalozzi in various stages of his experimentation.

Object-teaching and oral speech.—The primary purpose in teaching through observation and real experience was to have the children get real and clear ideas instead of mere words or hazy notions. This led to a subordination or elimination of book study which had two important effects on practice: (1) the teacher became an active instructor of groups of children, instead of a hearer of individual recitation; (2) children were given training in oral speech which had practically no place in the elementary schools before.

We have seen (in an earlier article) how the Christian Brethren and the Lancasterian schools substituted group recitations for individual recitations, but with them teaching continued to be primarily hearing children recite from books. With oral instruction based on object-teaching the schoolroom activity took on an entirely different character. In the first place a single objective center of attention usually became the center of interest, such as the hole in the wall paper at Burgdorf or the valley at Yverdon. In connection with some such center of attention, e.g., in studying beans, the teacher raised questions intended to set the children to thinking actively for the answer to a problem which they felt in common, such as "How many beans are on the table?" "What is the color of the beans?" In the absence of books, any information which the children did not possess or could not discover had to be given by the teacher, hence the teacher's knowledge of the objective world became important. This change in the emphasis from "what the book said," to what the children had experienced or were experiencing and what the teacher knew, led to an elaborate development of the technique of instruction during the nineteenth century. The teacher was now confronted with such questions as, What objective experiences to select for children? How arrange to give them these experiences? How keep children actively attentive and thinking about the object? What kind of questions to ask in order to bring out unnoticed characteristics? How systematize and arrange the child's experiences and ideas? How provide for repetition and fixing them since simply rereading in a book was no longer possible? How much should the children be told, how much should they discover themselves? In telling them, what form of expression should be used?

These oral methods assumed two extreme forms: (1) the teacher simply questioned the children about their experience and told them nothing; (2) the teacher told them everything, his words being substituted for those of the textbook. The evil consequence of both these extremes was that children did not learn how to use books, which Pestalozzi sanctioned by his statement that he had not read a book for years. The influence of these extremes on the training of teachers is important. With the extreme of all questioning, it was assumed that the teacher's knowledge was unimportant, a proper method of questioning being the sole requisite. Inasmuch as some people are naturally good questioners, it was assumed that they were skilled teachers. This was especially characteristic of the early work of Pestalozzi and his assistant Krusi, who through ignorance could only question children about holes in the wall paper, or have them describe natural objects. The extreme of lecturing by the teacher tended to emphasize the teacher's knowledge, and made for the development of academic subject-matter in courses for training teachers.

With Pestalozzi himself, oral instruction usually took the form of concert recitation, the children repeating after him a series of statements. This was perhaps the poorest form that the oral instruction assumed, inasmuch as it involved neither useful knowledge in the teacher nor active thought by the children, but merely imitative shouting.

The second large influence of oral objective teaching was to give children training in oral speech, sometimes oral composition. In *Leonard and Gertrude,* the latter was in no haste for the children to "learn to read and write. But she took pains to teach them early how to speak; for, as she said, 'Of what use is it for a person to know how to read and write, if he cannot speak? since reading and writing are only an artificial sort of speech.' " Thus the aim of teaching children to speak was an important element in Pestalozzian object-teaching. While there were many crudities in Pestalozzi's methods of language training, the following valuable points characterized the methods as developed by his more intelligent followers: (1) the child should have clear ideas to be expressed, these to be based on real experiences; (2) his vocabulary should be systematically enlarged in expressing these ideas; (3) he should be trained to keep in mind an increasing series of ideas and express them in order.

Good examples of this training in expression based on observation are to be found in the reports on Prussian Pestalozzian schools. In that of Calvin E. Stowe (1839) a number of concrete cases are given in the form of descriptions of lessons which he observed in his travels in Prussia. One of these descriptions concerning children from six to eight years of age stated that,

> for six months or a year, the children are taught to study things, to use their own powers of observation, and speak with readiness and accuracy, before books are put into their hands at all. A few specimens will make the nature and utility of this mode of teaching obvious.
>
> In a school in Berlin, a boy has assigned him for a lesson a description of the remarkable objects in certain directions from the school house, which is situated in Little Cathedral street. He proceeds as follows:
>
> When I come out of the school-house into Little Cathedral street, and turn to the right, I soon pass on my left hand the Maria Place, the Gymnasium and the Anklam Gate. When I come out of Little Cathedral street, etc.

Horace Mann also described such lessons as he had observed them in Prussia and commented on their value for training in speaking, at the same time contrasting with them in a very unfavorable light the mechanical methods which prevailed in American schools. He said,

> Again, the method I have described necessarily leads to conversation, and conversation with an intelligent teacher secures several important objects. It communicates information. It brightens ideas before only dimly apprehended. It addresses itself to the various faculties of the mind, so that no one of them ever tires or is cloyed. It teaches the child to use language, to frame sentences, to select words which convey his whole meaning, to avoid those which convey either more or less than he intends to express; in fine, it teaches him to seek for thoughts upon a subject, and then to find appropriate language in which to clothe them.

An American example of these Pestalozzian objective-language methods, taken from the *Oswego Methods* of 1862, is the following for children 9 to 10 years of age:

> The children were to give any term which may be used in describing a face, and the teacher wrote them on the board as mentioned. They gave *pretty, homely, white, rosy, freckled, wrinkled, blushing, happy, bashful, sad, pale, cheerful, thin, sorrowful, sour, ugly.*
>
> When a sufficient number of words had been written upon the board, the teacher called up a pupil to mark each word that may be used to describe one face. The first pupil marked words making the following description: "Happy, thin, wrinkled, pleasant, pale, pretty, white, cheerful face," etc.

Transition from systematic object-teaching to natural science.—The object-teaching described so far has been of a rather informal nature, the teacher utilizing the common objects in the children's immediate environment to enlarge their knowledge and train them in a command of language. In some cases, however, the object-teaching was highly systematized and collections of materials used in physics, chemistry, mineralogy, botany, and zoölogy were placed before the children, who were required to learn to describe them in scientific terms. This was characteristic of the Oswego lessons as described by the investigating committee in 1862. Systematic training for children from 6 to 8 was provided in assorting and naming the colors of yarns and colored cards. In the next highest class (9-10) children were taught the scientific nomenclature of colors, to classify them as primary, secondary, and tertiary. Older children were taught the sensory qualities of certain chemicals as in the following lesson intended to teach children to distinguish acids from alkalies.

> A class of boys and girls were arranged upon the stage so that they could observe the vials of liquids and solids upon the table in the center. . . . . The children were each given some cream of tartar to taste; they pronounced the taste *sour.* The name of the substance was written on the blackboard. Then they were given some sal soda to taste, and they said it tasted "bitter and burning." The name of this was written on another part of the board. The teacher then told the children that we called those substances which taste sour *acids,* and wrote the word *acids* over cream of tartar. She then told them that the name for those substances which

have a "bitter, burning taste," is *alkalies*. This word was written over sal soda. Then the children were given some vinegar to taste, etc.

These Oswego examples were considered by some as lessons in elementary science because they used some of the materials of the natural sciences and introduced their nomenclature and classifications. But the phrase "object-teaching" was the name by which this work was ordinarily known, the phrase "nature-study" coming into general use later.

As a consequence of the general attention attracted by the Oswego experiment, "object-teaching" became the great topic of discussion at teachers' meetings during the sixties. The *Proceedings of the National Teachers' Association* for this decade show the same interest in object-teaching as is manifested today in industrial education or variation of instruction to meet individual needs. The consideration of oral instruction was generally linked with object-teaching and the values and dangers of the various methods of oral instruction were argued pro and con.

The transition from object-teaching to elementary science or nature-study, taught by oral methods, appears clearly in the development of the curriculum in the St. Louis schools about 1870. William T. Harris, later United States Commissioner of Education, was then superintendent in St. Louis, and his reports contain complete statements of the character and justification of his innovations. While a conservative innovator, Superintendent Harris was thoroughly in touch with European educational thought and practice. and under his management the St. Louis schools proved the practical possibilities and values of many innovations which other cities introduced many years later.

The transition mentioned above was concisely stated by Superintendent Harris in his report for 1870-71 as follows:

> For several years "object lessons" have been used to some extent by our teachers. Last year oral lessons in physiology were given in all the grades. Upon the adoption of the course of study in Natural Science these lessons have been confined to the hour given to that course and brought in as one of the means of giving zest and interest.

Mr. Harris said that in previous reports he had argued at length for the fundamental subjects, reading, writing, arithmetic, and geography as more important than any of the new "special subjects" demanding admission to the curriculum, but that this year he had to report and justify the introduction of natural science. The social justification stated was "the importance of natural science as furnishing the theoretical basis of productive industry and the consequent elevation of the masses of all the people by means of the wealth created thereby."

The difference between "object-teaching" and "natural science" seemed to be in the degree of classification. Science was conceived "as completely classified knowledge," hence the important thing in instruction was to see that the children learned the classifications. The "syllabus of lessons in natural science" was most formidable, embracing almost everything in "nature inorganic"—mathematics, physics, chemistry, astronomy; and "nature organic"—botany, zoölogy, physiology. The technical phrases of these sciences were to be introduced, though not so rapidly as to burden the pupils. Good "types" or representative examples of the general classes were to be studied. The objective method was ordered in these words:

> Every lesson should be given in such a way as to draw out the perceptive powers of the pupil by leading him to reflect on what he sees or to analyse the object before him. It is at first thought strange—although it is true—that powers of observation are to be strengthened only by teaching the pupil to *think* upon what he sees.

Analysis, classification, and cause and effect were emphasized.

The values of oral instruction not only for the pupil but also in developing the teacher were emphasized by Mr. Harris. He said,

> It seems to me this phase of the subject—its value to the teacher—is worth quite as much as the immediate value of these lessons to the pupil. . . . . The teacher is led to study and thoroughly prepare herself, and then in [the] lesson, she is led to probe in a freer manner than ordinary, the miscellaneous fund of experience possessed by the individuals of her class; thus she cannot fail to find herself getting more and more emancipated from the slavish use of the text book and able to stand before her class with a consciousness of her strength and ability to draw out the resources of each and all her pupils and combine the same into one result.

The extensive influence of Pestalozzian objective teaching on oral instruction and the study of natural objects has been shown by this brief discussion. The influence on the teaching of geography was described in recent numbers of the *Elementary School Teacher.* The influence on the teaching of arithmetic was probably greater than on any other subject, resulting in the great vogue of "mental" or "intellectual arithmetic" in the nineteenth century. This was the first phase of Pestalozzianism to secure a strong hold on American schools, through the general adoption of Warren Colburn's *First Lessons* published in 1821. Nearly all of the important improvements in American elementary-school methods between 1820 and 1870 were Pestalozzian in their origin.